

Citation:

Casagrande SS, Whitt-Glover MC, Lancaster KJ, Odoms-Young AM, Gary TL. Built environment and health behaviors among African Americans: a systematic review. Am J Prev Med. 2009 Feb;36(2):174-81.

PubMed ID: [19135908](#)

Study Design:

Systemic Review

Class:

M - [Click here](#) for explanation of classification scheme.

Research Design and Implementation Rating:

POSITIVE: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

This article presents a summarization of the literature on the built environment and its association with physical activity, diet and obesity among African Americans.

Inclusion Criteria:

Eligible articles

- evaluated the objective or perceived physical built environment
- and the association with physical activity, dietary behaviors, and obesity or BMI
- study populations of $\geq 90\%$ African Americans (or studies that included a subgroup analysis of African Americans).
- observational studies, including population and community surveys, cohort and cross-sectional studies
- published in English through July 2007
- studied African American adults ≥ 18 years.

Exclusion Criteria:

Articles were excluded that

- evaluated neighborhood socioeconomic status or racial segregation as environmental measures,
- evaluated only health status or mortality as outcomes,
- provided no subgroup analyses for African Americans,
- or included $< 90\%$ African Americans in populations where analyses for race/ethnic groups were combined.
- were intervention studies, design manuscripts and qualitative studies

Description of Study Protocol:**Search Strategy:**

Published studies were identified by searching the PubMed database from inception through July 21, 2007 using study key words.

Additional strategies included searching the bibliographies of eligible studies and searching the authors' personal databases for relevant articles on the built environment among African Americans.

Data Abstraction

Using a standard review form, full articles were independently serially reviewed by two investigators. Data abstraction occurred between October 2007 and February 2008.

Statistical Analysis

Results of the review are summarized qualitatively in evidence tables that include major findings and conclusions. Odds ratios in the evidence tables were extracted directly from the tables of reviewed articles.

A meta-analysis was not performed since there were a small number of articles and a variety of methods were used in eligible articles.

Data Collection Summary:

Information abstracted from articles

- Built environments features related to physical activity and obesity
- Environmental features related to dietary intake
- Description of health behaviors, weight status and measures
- Associations between the built environment and physical activity
- Associations between the built environment and dietary intake
- Association between the built environment and obesity

Data Synthesis

Results of the review are summarized qualitatively in evidence tables that include major findings and conclusions. Odds ratios shown in the evidence tables were extracted directly from the tables or reviewed articles. For comparison purposes, odds ratios were presented for similar exposures across studies. Any significant findings were also presented.

Description of Actual Data Sample:

Number of articles included: 10

Number of articles identified: 2797 titles were identified from the initial search; 90 were deemed eligible for abstract review. Of these, 17 articles were eligible for full review and ten met all eligibility requirements.

Characteristics of articles on the built environment and health behaviors/obesity among African Americans

Study	Sample size	Age (years)	% female	% African American	Setting	Location	Recruitment and methods
Ainsworth (2003)	917	20-59 (range)	100.0	100.0	Metropolitan	Sumter, Orangeburg counties, South Carolina	Recruitment: RDD Face-to-face interview
Eyler (2003)	4,122	34.5 (M)	100.00	51.4	Mixed	Multi-site: Universities: AL, SC, IL, MD, NC	Recruitment: RDD Face-to-face interview
Rohm Young (2003)	234	20-50 (range)	100.0	100.0	Urban	Baltimore, MD	Recruitment: community organization Face-to-face interview
Sanderson (2003)	567	20-50 (range)	100.0	100.0	Rural	Green, Lowndes, Wilcox counties, AL	Recruitment: RDD

Wilbur (2003)	399	20-50 (range)	100.0	100.0	Urban	Chicago, IL	Recruitment through community Face-to-face interview
Hooker (2005)	1,165	18-96 (range)	56.5	40.9	Rural	One county SC	Recruitment: RDD Questionnaire
King (2000)	2,912	≥40	100.0	25.6	Mixed	National sample	Telephone survey by ZIP code
Morland (2002)	10,623	59.7 (M)	55.9	225	Mixed	Multi-site: Washington county MD; Forsyth county NC; Jackson city MS; Minneapolis MN	Existing study Objective environmental factors
Wanko (2004)	605	50 (M)	56.0	89.9	Urban	Atlanta GA	Consecutive patients for first visit at diabetes clinic Self-administered questionnaire
Zenk	266	48.6	100.0	100.0	Urban	Detroit MI	Community survey

Summary of Results:

Key Findings

- Light traffic, the presence of sidewalks, and safety from crime were more often positively associated with physical activity, although associations were not consistent (OR range = 0.53-2.43).
- Perceived barriers to physical activity were associated with obesity.
- The presences of supermarkets and specialty stores was consistently positively associated with meeting fruit and vegetable guidelines.

Measures and outcomes of articles on built environment and health behaviors/obesity among African Americans (AA)

Study	Built environment features	Measure	Behavior/weight status	Measure	Variable of interest	Point est (95% CI)	Conclusions
Ainsworth (2003)	Traffic Presence of sidewalks Street lighting at night Unattended dogs	Women and PA Survey	Physical activity	BRFSS	Traffic, light, Sidewalks	OR=1.53(1.00,2.34)	Lighter traffic and the presence of sidewalks were associated with meeting PA recommendations; social factors also associated

Eyler (2003)	Safety from crime Places within walking distance Places to exercise				Urban: safety from crime Mixed: Sidewalks	Urban OR=1.27(0.51,3.15) Mixed OR=1.07(0.70,1.65)	Physical environmental factors were not consistently related to PA
Rohm Young (2003)					Traffic, light Sidewalks Safety from crime	Traffic OR=0.59(0.20,1.78) Sidewalks OR=0.82(0.22,3.09) Safety OR=0.93(0.41,2.11)	For any active vs inactive, physical environment factors not associated with PA level; social factors associated with PA
Sanderson (2003)					Traffic, light Sidewalks Safety from crime	Traffic OR=0.53(0.22,1.32) Sidewalks OR=0.95(0.52,1.76) Safety OR=0.66(0.36,1.21)	For any active vs inactive, physical environment factors not associated with PA level; social factors associated with PA
Wilbur (2003)					Traffic, light Safety from crime	Traffic OR=1.05(0.34,3.27) Safety OR=2.43(1.19,4.99)	Safety from crime was associated with any PA vs no activity
Hooker (2005)	Traffic Street light quality Unattended dogs Public facilities are safe	Adapted from Brownson and focus groups	Physical activity	BRFSS, 2001	Traffic, light Safe from crime	Traffic OR=0.75(0.36,1.55) Safe OR=1.32(0.73,2.38)	Among AA, no association between perceived neighborhood environment supports and PA
King (2000)	Feel safe walking/jogging Sidewalks Heavy traffic Hills Street lights Unattended dogs Enjoyable scenery High crime	Women's determinants study	Physical Activity	BRFSS & NHIS	Unattended dogs Sidewalks High crime	Unattended dogs OR=1.51(1.06,2.15) Sidewalks OR=1.51(0.98,2.32) High crime OR=0.91(0.58,1.42)	Among AA, unattended dogs was the only attribute associated with any PA vs no activity

Morland (2002)	Food stores and food service places	Geocoded addresses from local health and state departments	Fruit and vegetable, total and saturated fat intake	FFQ	Fruits and vegetables Total fat guideline Saturated fat guideline	Fruits and vegetables OR=1.54(1.11,2.12) Total fat OR=1.22(1.03,1.44) Saturated fat OR=1.30(1.07,1.56)	The presence of supermarkets and the local food environment increased the likelihood of meeting dietary recommendations
Wanko (2004)	Perceived barriers to PA	Survey	Obesity	Objective height & weight	BMI	OR=1.04(1.01,1.06)	A higher BMI increased patients likelihood of reporting an exercise barrier
Zenk (2005)	Food stores	Self-report	Fruit and vegetable intake	BRFSS, 2001	Supermarket Specialty stores	Supermarket beta=1.22(0.33) Specialty stores beta=2.37(1.06)	Shopping at supermarket or specialty store increased likelihood to meet fruit and vegetable recommendations

Author Conclusion:

With relatively few studies in the literature focused on African Americans, the findings for features of the built environment that are associated with physical activity, diet, and obesity are inconclusive.

Reviewer Comments:

Research Design and Implementation Criteria Checklist: Review Articles

Relevance Questions

- | | | |
|----|---|-----|
| 1. | Will the answer if true, have a direct bearing on the health of patients? | Yes |
| 2. | Is the outcome or topic something that patients/clients/population groups would care about? | Yes |
| 3. | Is the problem addressed in the review one that is relevant to nutrition or dietetics practice? | Yes |
| 4. | Will the information, if true, require a change in practice? | Yes |

Validity Questions

- | | | |
|----|--|-----|
| 1. | Was the question for the review clearly focused and appropriate? | Yes |
| 2. | Was the search strategy used to locate relevant studies comprehensive? Were the databases searched and the search terms used described? | Yes |
| 3. | Were explicit methods used to select studies to include in the review? Were inclusion/exclusion criteria specified and appropriate? Were selection methods unbiased? | Yes |
| 4. | Was there an appraisal of the quality and validity of studies included in the review? Were appraisal methods specified, appropriate, and reproducible? | Yes |

5.	Were specific treatments/interventions/exposures described? Were treatments similar enough to be combined?	Yes
6.	Was the outcome of interest clearly indicated? Were other potential harms and benefits considered?	Yes
7.	Were processes for data abstraction, synthesis, and analysis described? Were they applied consistently across studies and groups? Was there appropriate use of qualitative and/or quantitative synthesis? Was variation in findings among studies analyzed? Were heterogeneity issues considered? If data from studies were aggregated for meta-analysis, was the procedure described?	Yes
8.	Are the results clearly presented in narrative and/or quantitative terms? If summary statistics are used, are levels of significance and/or confidence intervals included?	Yes
9.	Are conclusions supported by results with biases and limitations taken into consideration? Are limitations of the review identified and discussed?	Yes
10.	Was bias due to the review's funding or sponsorship unlikely?	Yes

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